Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense	Date: February 2016
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	202.483	55.821	70.320	74.943	-	74.943	69.442	73.132	80.891	85.057	Continuing	Continuing
P826: *Quick Reaction Fund*	62.820	17.863	22.212	23.675	-	23.675	21.828	23.045	25.618	26.993	Continuing	Continuing
P828: *Rapid Reaction Fund*	130.629	34.225	44.426	47.350	-	47.350	43.657	46.090	51.236	53.986	Continuing	Continuing
P831: *Joint Rapid Acquisition Cell Support*	4.859	1.554	1.620	1.636	-	1.636	1.652	1.669	1.686	1.703	Continuing	Continuing
P833: *Strategic Multi-Layered Assessment (SMA) Support*	4.175	2.179	2.062	2.282	-	2.282	2.305	2.328	2.351	2.375	Continuing	Continuing

Note

The Quick Reaction Special Projects (QRSP) Program Element is focused on producing risk-reducing prototypes that anticipate adversaries' capabilities and address priority Combatant Command (COCOM) needs through short term, innovative science and engineering initiatives. QRSP efforts will support the Department's goal to provide a hedge against technical uncertainty by leveraging insights gained through mission-focused efforts and by fostering collaboration and innovation among government laboratories, academia, and commercial research.

A. Mission Description and Budget Item Justification

The QRSP Program Element develops risk-reducing prototypes and conducts demonstrations designed to develop capabilities in anticipation of emerging adversary threats and emerging capabilities, as well as address immediate COCOM needs. QRSP efforts support the Department's goal to provide a hedge against technical uncertainty by acting as an incubator for developing potentially game-changing capabilities and by fostering collaboration among other government agencies, DoD laboratories, academia, and the commercial sector. QRSP enables the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) to anticipate and respond to emergent DoD issues and time-sensitive threats by selecting projects within the year of execution. Project selection is guided by Department-level strategies and priorities, such as Better Buying Power 3.0, Reliance 21, the Long Range Research and Development Program Plan, and COCOM Integrated Priority Lists (IPLs). QRSP efforts field new capabilities at low cost in short time-frames, inform the requirements process, and inject innovative technologies into programs of record. The QRSP Program supports four major project codes that expedite development and transition of new capabilities to the warfighter. These projects are: 1) Quick Reaction Fund (QRF); 2) Rapid Reaction Fund (RRF); 3) Joint Rapid Acquisition Cell (JRAC) support; and 4) Strategic Multi-Layered Assessment (SMA) support. Focus areas align to DoD science and technology priorities, including counter anti-access/area denial; counter weapons of mass destruction; low-cost precision engagement; counter-electronic warfare; and autonomous systems.

The QRF Program objectives are to develop prototypes in response to emergent conventional warfare needs that take advantage of breakthroughs in rapidly evolving technologies. The QRF is executed by the Rapid Reaction Technology Office (RRTO). QRF projects focus on force protection to enhance anti-access and area denial capabilities, space capability resilience, and broad electronic warfare capabilities. The QRF initiates projects during the execution year and focuses on maturing technologies critically needed for the COCOMs by producing prototypes for demonstration and evaluation. The QRF typically takes Technology Readiness Level (TRL)

four to five technologies and looks to transition them to an end user or COCOM at a TRL of seven or higher with a total project duration of 12 to 18 months. The QRF consistently exceeds the transition objective of 40 percent for demonstration programs (DoD Strategic Objective 3.5.2D).

The RRF Program objectives, executed by RRTO, are to develop proof of principle prototypes to counter emerging irregular warfare threats, anticipate adversaries' exploitation of new technologies and accelerate the delivery of effective and affordable capabilities to the warfighter. RRF initiatives support the DoD Research and Engineering Enterprise mission to develop, demonstrate, assess, and rapidly field innovative concepts and technologies that supply critical capabilities to meet time-sensitive operational needs. RRTO leverages technology developed outside of the DoD in the commercial sector, academia, international arenas, as well as small businesses and non-traditional sources, to address DoD needs as identified by COCOM, Military Service organizations, other Defense organizations, and interagency partners. Typical RRF programs are six to 18 months in duration and aim to mature a capability to demonstration. The RRF consistently exceeds the transition objective of 40 percent for demonstration programs (DoD Strategic Objective 3.5.2D).

The JRAC Program objectives focus on responding to Joint Urgent Operational Needs (JUONS) and Joint Emerging Operational Needs (JEONS) that have been submitted by COCOMs and validated by the Joint Staff. In addition, the JRAC's objectives are to manage the delivery of capabilities as requested by the COCOM in a time frame acceptable to the COCOM. Efforts, in most instances, utilize contingency and other rapid acquisition authorities.

The SMA cell's objective is to support all COCOMs, Joint Force Commanders, and other government agencies by assessing complex operational/technical challenges, which require collaborative multi-agency and multi-disciplinary approaches. With input from across the United States Government, academia, and the private sector, the SMA cell develops solution options to Joint Staff/COCOM-generated challenging problems and informs senior leadership. Each assessment is initiated at the request of COCOM senior leadership. Priorities for SMA cell programs are set by the Joint Staff Deputy for Operations. Products are typically generated within six months and directly contribute to the decision-making process of the Joint Staff/COCOM's senior leadership.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	59.235	90.500	76.441	-	76.441
Current President's Budget	55.821	70.320	74.943	-	74.943
Total Adjustments	-3.414	-20.180	-1.498	-	-1.498
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-20.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.791	-			
• Internal Realignment for Higher Priorities	-	-	-0.918	-	-0.918
• FY15 Reprog. for Cancelled Account	-0.023	-	-	-	-
• Other Reprogrammings	-1.600	-	-	-	-
• FFRDC Reduction	-	-0.180	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense	Date: February 2016
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603826D8Z *I Quick Reactions Special Projects (QRSP)*

• Economic Assumptions	-	-	-0.580	-	-0.580

Change Summary Explanation

FY 2017 internal realignment reflects funding for higher Departmental priorities and requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense											Date: February 2016	
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*				Project (Number/Name) P826 / *Quick Reaction Fund*			
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
P826: *Quick Reaction Fund*	62.820	17.863	22.212	23.675	-	23.675	21.828	23.045	25.618	26.993	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Quick Reaction Special Projects (QSRP) Program supports four separate projects that provide rapid funding to expedite development and transition of new prototypical technologies to the warfighter. The QSRP Program provides the flexibility to mitigate emerging threats and addresses needs that arise outside the two-year budget cycle.

The Quick Reaction Fund (QRF) Program provides the Services, components, Combatant Commands (COCOMs), and force providers opportunities to capitalize on technologies that are at a relatively high level of technical maturity and to rapidly develop and field-test promising new proof-of-principle prototypes that can have immediate impact on military operations. QRF initiatives typically deliver a prototype application within 12 months of being funded.

The QRF Program focuses on projects that have the potential to address conventional, disruptive, catastrophic and irregular threats. More specifically, initiatives that serve to maintain a technical advantage over potential adversaries and reduce technical risk barriers in the following interest areas: counter anti-access and area denial capabilities; base protection; electromagnetic bandwidth and spectrum enhancement; persistent intelligence, surveillance, and reconnaissance; newly emerging national threats; directed energy capabilities; low-cost precision engagement capabilities; unmanned and robotic systems; counter weapons of mass destruction capabilities; and, counter-electronic warfare technologies.

In FY 2016 and FY 2017, the QRF Program will continue to identify and fund new projects and prototypes that respond to critical operational needs and emerging threats. Current and future efforts that show significant effectiveness can be leveraged by additional investments in order to accelerate transition to operational forces.

Success stories and significant transitions of note for FY 2015 include:
•Morning Express: This project to develop countermeasures to electronic systems to protect forces and infrastructure from attack transitioned to the joint Air-Sea Battle office following demonstrations of the prototype systems and execution of power studies, technical analyses, thermal assessments and antenna isolation analysis.
•Square Dance Collaboration on Sentient-R: This project created a single integrated Maritime Domain Awareness (MDA) environment to provide operational users from U.S. and Commonwealth nations access to MDA sensitive compartmented information (SCI) data. Sentient-R established web-based access to the leading Intelligence, Surveillance and Reconnaissance (ISR) Research & Development (R&D) system. Through data sharing, partners are able to rapidly collaborate, develop, share, and test new ISR capabilities across operational environments. Training, operating manuals, and accreditation on the network were also provided.
•U.S. and Australian Enclave Moving Target Cyber Collaboration Experiment: Aimed at developing a network protect and defend capability demonstrating enclave resiliency during cyber events, this project demonstrated a shadow network for covert information sharing between U.S. and Australian Defense Department cyber operations. The ability to detect suspicious/malicious activity allowed analysts to assess activity without adversary awareness while operating through a cyber event was demonstrated via an experiment on unclassified networks. This capability transitioned to the U.S. Navy (USN) Automated Digital Network System (ADNS) Program Office.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*	**Project (Number/Name)** P826 / *Quick Reaction Fund*

•Pacific Pilot: The Pacific Pilot project integrated network technologies and demonstrated a net-centric approach to bi-directional dissemination of command, control, communications, computers, intelligence, surveillance and reconnaissance data to find, track and fix threats supporting U.S. Air Force, U.S. Navy and U. S. Special Operations Forces' tactical communications. The capability was transitioned to U.S. Navy and U. S. Air Force program offices.
•Global Positioning System (GPS) Urban Environment Analysis Tool: This project developed and validated a tool to analyze different ways to augment GPS in a dense urban environment, which can be used to inform investment decisions and ultimately warfighter use of various GPS augmentations. Following a test of the tool against test data from New York City, the project was transitioned to the U.S Army Product Director for Positioning, Navigation and Timing.
•Project 77: This project developed a target surrogate, conducted a data collection, and provided analyses to establish the feasibility of a new synthetic aperture radar mode. The metric is intended for automatic detection without operator-in-the-loop to support wide area surveillance. The Project 77 products were inserted into a classified program.
•Project White: Project White assessed the viability of laser technology as a possible countermeasure to enemy sensors and Intelligence, Surveillance and Reconnaissance (ISR) systems. Effects testing was executed at the Naval Research Laboratory (NRL). Project White transitioned into the Navy Solid State Laser Technology Maturation (SSL-TM) program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Dark Storm ***Description:*** The program provides advanced Space Situational Awareness (SSA) collection capabilities. Upon completion in FY 2016, Dark Storm will successfully address important knowledge gaps to further protect U.S. interests in space. Details are classified. ***FY 2015 Accomplishments:*** Dark Storm developed and implemented a multi-camera system for SSA, implemented algorithm enhancements and provided site software updates to equipment. The project conducted data analysis of maneuver data history, space observations and tracks from information collected at three sites. ***FY 2016 Plans:*** Dark Storm hardware will deploy to six test sites to prove viable data transfer processes to transmit data to a central site. The central site will have software installed to enable processing and integration of the data. The field equipment will also be hardened against weather and tampering.	1.700	1.800	-
Title: Hardware/Software (HW/SW) Assurance and Integrity Analysis ***Description:*** The Department of Defense (DoD) has developed a trusted systems strategy that is based upon mission assurance, comprehensive protection planning, industry standards and advancing DoD's capability to identify and mitigate HW/SW vulnerabilities through techniques and tools. This project supports research and development focus to advance capabilities that can be made available to current and future programs in acquisition, operational systems and infrastructure.	3.000	4.000	4.000

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
These HW/SW Assurance projects directly support the 2014 National Defense Authorization Act (NDAA) Section 937. It provides funding for the Department's capabilities to augment and federate existing HW/SW assurance expertise, capabilities and facilities within the Services and Agencies, to address existing gaps, as well as emerging threats and vulnerabilities. The resulting federation will detect, assess and prioritize critical mission vulnerabilities to malicious software attacks and supply chain exploitation vulnerabilities, promulgate findings and mitigate critical vulnerabilities in both HW/SW. ***FY 2015 Accomplishments:*** In FY 2015, this effort continued development, assessment and promulgation of software test tools and techniques. The program continued maturation of a federated approach to ensuring HW/SW tools, techniques, expertise and support to acquisition and sustainment programs. The effort continued gap identification, assessment and prioritization, and maturation of cross-DoD concept of operations (CONOPS) in delivery of HW/SW assurance services to programs. The program initiated planning, fact-finding and cross-service coordination for software and hardware assurance enterprise license needs. ***FY 2016 Plans:*** This program will continue development, assessment, recommendation and promulgation of software test tools and techniques to programs. It will continue maturation of a federated approach to ensuring HW/SW tools, techniques, expertise and support to acquisition and sustainment programs, and continue HW/SW capability identification, gap identification, assessment, prioritization and remediation. The program will begin SW assurance tool license acquisition and transition to centralized inventory and operational management. ***FY 2017 Plans:*** This program will continue development, assessment, recommendation and promulgation of software test tools and techniques to programs. It will continue maturation of a federated approach to ensuring HW/SW tools, techniques, expertise and support to acquisition and sustainment programs, and continue HW/SW capability identification, gap identification, assessment, prioritization and remediation. The program will continue SW assurance tool license acquisition, and using centralized inventory and operational management, promulgate licenses and tools to programs.			
Title: Columbia ***Description:*** Columbia is an electronic countermeasure system designed to address a specific threat to U.S. Forces. The Columbia effort will deliver a size, weight and power (SWaP) assessment and laboratory electromagnetic interference/ electromagnetic compatibility (EMI/EMC) analysis of a sustainable, maintainable, self-contained capability that will mitigate the effects of an attack. Details of this project are classified. ***FY 2015 Accomplishments:***	3.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Columbia successfully conducted an analysis of alternatives and SWaP assessment. EMI/EMC laboratory testing was conducted and system Concept of Operations (CONOPS) was defined. Potential transition to U.S. Pacific Command (USPACOM) for deployment has been pursued.			
Title: Project 319TR ***Description:*** Utilizing existing assets, Project 319TR provided an initial 120-day, 24-hour/seven-days-a-week operations collection utilizing a unique sensor system. Further details are classified. ***FY 2015 Accomplishments:*** A successful demonstration in FY 2015 provided the Services an alternate source of information for transition to multiple classified directorates/organizations. Further details are classified.	3.560	-	-
Title: Project 904 Phase II ***Description:*** Project 904 Phase II demonstrated an end-to-end collection system to address ongoing information needs. Details of the project are classified. ***FY 2015 Accomplishments:*** Project 904 Phase II demonstrated the ability to provide the warfighter an alternative avenue to information that may not typically be accessible due to higher priority tasking requirements. This allows the warfighter to gain timely access to required critical information during planning and operational phases. This technology transitioned to the Services after successful development.	0.753	-	-
Title: Airborne General Purpose Seeker Emulator Testbed ***Description:*** This project will develop a modular, reconfigurable airborne test bed designed to emulate the seekers of emerging threat missile systems. Details of the project are classified. ***FY 2015 Accomplishments:*** A trade-off analysis for the emulator architecture and an aircraft assessment was conducted. Final emulator and antenna system designs and documentation were completed. Emulator performance was characterized following aircraft flight certification. The general purpose missile seeker test bed was developed in conjunction with the Test Resource Management Center. U.S. Pacific Command, U.S. Central Command and U.S. European Command have pursued data regarding the testing and utility of the system. ***FY 2016 Plans:***	3.000	3.000	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
The next phase of this effort will include integration of the pods onto the aircraft, completion of aircraft flight certification, performance of a flight test and data collection to prove the capability. This capability will support the U.S. Navy, U.S. Air Force, U.S. Army and the Missile Defense Agency.			
Title: Robust Tactical Data Link Modernization ***Description:*** This project developed new Link 16 improvements for increased anti-jam communication performance including a new antenna array and the development of adaptive array processing algorithms, and a prototype hardware implementation of a more robust waveform mode. ***FY 2015 Accomplishments:*** This project rapidly prototyped an airborne array data collection system for a 2015 field exercise. Both the prototype hardware implementation of the new waveform mode and the adaptive array processing algorithms were tested against data collected from the exercise to demonstrate the real-world performance gains offered by Robust Tactical Data Link Modernization's Link 16 enhancements. This testing supported a transition of the capability to the U.S. Air Force.	2.850	-	-
Title: Anti-Access/Area Denial Focus Area ***Description:*** In FY 2016 and FY 2017, this Quick Reaction Fund (QRF) focus area will support projects that concentrate on developing capabilities and countermeasures in anticipation of emerging needs to monitor and/or gain access to geographical areas that have been strategically denied by adversarial forces and technologies. The Rapid Reaction Technology Office (RRTO) will ensure the QRF efforts are not duplicative with other work within the Defense Department or with outside agencies and will seek to leverage such efforts. ***FY 2016 Plans:*** Anti-access/area denial investment decisions during the budget year will respond to Department, Combatant Command (COCOM), Service and other government organization priorities. New investments will be considered as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the Department of Defense (DoD), Federally Funded Research and Development Centers (FFRDCs), other government agencies, industry and academia will help identify areas critical to developing future anti-access/area denial technological enhancement efforts. Anticipate funding two to three prototypes in FY 2016. ***FY 2017 Plans:*** Anti-access/area denial investment decisions during the budget year will respond to Department, COCOM, Service and other government organization priorities. New investments will be considered as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the DoD, FFRDCs, other government agencies, industry	-	3.059	4.907

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
and academia will help identify areas critical to developing future anti-access/area denial technological enhancement efforts. Anticipate funding three to four prototypes in FY 2017.			
Title: Counter-Electronic Warfare Technologies Focus Area ***Description:*** This focus area, in anticipation of emerging needs, will include the maturation of proof of principle prototypes that advance countermeasures against electronic components and systems to protect forces and infrastructure. In addition, projects may include techniques and methodologies that reduce adversarial electronic attack capabilities and enhance our ability to operate in denied areas. The RRTO will ensure the QRF efforts are not duplicative with other counter-electronic warfare efforts and will seek to leverage other such efforts. ***FY 2016 Plans:*** Investment decisions in counter-electronic warfare technologies during the budget year will respond to Department, COCOM, Service and other government organizations priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the DoD, FFRDCs, other government agencies, industry and academia will help identify areas critical to counter-electronic warfare efforts. Anticipate funding three to four projects in FY 2016 ***FY 2017 Plans:*** Investment decisions in counter-electronic warfare technologies during the budget year will respond to Department, COCOM, Service and other government organizations priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the DoD, FFRDCs, other government agencies, industry and academia will help identify areas critical to counter-electronic warfare efforts. Anticipate funding four to five projects in FY 2017.	-	5.032	6.447
Title: Counter-Weapons of Mass Destruction (CWMD) Focus Area ***Description:*** This focus area for FY 2016 and FY 2017, in anticipation of emerging needs, will include the development and advancement of prototype technologies that focus on the detection and interdiction of chemical, biological, radiological, nuclear, and high yield explosives threats. Projects may include techniques and methodologies that improve detection sensitivities; persistent intelligence, surveillance and reconnaissance; data-to-decision tools; and, global situational awareness. The Rapid Reaction Technology Office (RRTO) will ensure the Quick Reaction Fund (QRF) efforts are not duplicative with other CWMD efforts and will seek to leverage other such efforts. ***FY 2016 Plans:*** Investment decisions in CWMD during the budget year will respond to Department, COCOM, Service and other government organization priorities and new projects will be considered as new threats emerge or new opportunities are presented. Research	-	2.562	4.107

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
and coordination with organizations throughout the DoD, FFRDCs, other government agencies, industry and academia will help identify areas critical to CWMD efforts. Anticipate funding two to three projects. ***FY 2017 Plans:*** Investment decisions in CWMD during the budget year will respond to Department, COCOM, Service and other government organization priorities and new projects will be considered as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the DoD, FFRDCs, other government agencies, industry and academia will help identify areas critical to CWMD efforts. Anticipate funding three to four projects.			
Title: Persistent Intelligence, Surveillance and Reconnaissance (ISR) Focus Area ***Description:*** In anticipation of emerging needs, this focus area for FY 2016 and FY 2017 will include capabilities that improve ground, air, sea and space situational awareness for decision makers. Technologies may explore new or improved methods for surveillance sensors to operate within denied areas and more effective ISR architectures for rapidly processing, exploiting and disseminating situational awareness intelligence. They will ensure the efforts are not duplicative with on-going persistent ISR work and will seek to leverage other such efforts. ***FY 2016 Plans:*** Persistent ISR investment decisions during the budget year will respond to Department, COCOM, Service and other government organization priorities. Projects will be considered as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the government, industry and academia will help identify areas critical to developing future capabilities. Anticipate funding two to three projects. ***FY 2017 Plans:*** Persistent ISR investment decisions during the budget year will respond to Department, COCOM, Service and other government organization priorities. Projects will be considered as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout the government, industry and academia will help identify areas critical to developing future capabilities. Anticipate funding three to four projects.	-	2.759	4.214
Accomplishments/Planned Programs Subtotals	17.863	22.212	23.675

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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E. Performance Metrics

In FY 2017, performance metrics applicable to the Quick Reaction Fund (QRF) include attainment of DoD Strategic Objective 3.5.2D. The title of this objective is "Maintain a Strong Technical Foundation Within the Department's Science and Technology (S&T) Program" and the metric for this objective is to transition 40 percent of completing demonstrations per year. Each QRF project typically has a period of performance of 12 months. All QRF projects are monitored for schedule deviation, transition outcome, and deliverables such as test reports, components and equipment. For projects that were completed in FY 2015, the QRF achieved a transition rate of approximately 80 percent.

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Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*				Project (Number/Name) P828 / *Rapid Reaction Fund*			
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
P828: *Rapid Reaction Fund*	130.629	34.225	44.426	47.350	-	47.350	43.657	46.090	51.236	53.986	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Quick Reaction Special Projects (QSRP) Program supports four separate projects that provide rapid funding to expedite development and transition of new prototypical technologies to the warfighter. The QSRP Program provides the flexibility to mitigate emerging threats and addresses needs that arise outside the two-year budget cycle.

The Rapid Reaction Fund (RRF) is fully executed through the Rapid Reaction Technology Office (RRTO). RRTO was established to accelerate the development and transition of high-potential science and technology (S&T) projects into operationally useful prototypes in the execution years. The RRTO leverages the Department of Defense (DoD) S&T base and those of the other federal departments, academia and industry; stimulates interagency coordination and cooperation; accelerates the fielding of prototypical capabilities and concepts to counter anticipated and emerging threats; and, provides feedback to the S&T community to guide long term developmental strategies. Projects support high level Department strategies and objectives, such as Better Buying Power 3.0 and the Defense Innovation Initiative and geographic Combatant Command (COCOM) priorities. RRTO anticipates adversaries' exploitation of technology, including available and emerging commercial capabilities. Prototypes delivered by RRTO demonstrate the feasibility of a new technology, enable integration into larger systems and provide cost effective capabilities to operational users faster than the typical acquisition cycle.

In prior years, RRTO has explored novel methods and new approaches for persistent surveillance for counter-insurgency; developed alternate power sources for sensors and systems; provided low-cost capabilities for small-footprint operations; expanded human, social, and cultural knowledge; increased small unit situational awareness; advanced the interface between law enforcement and military operations; developed advanced biometrics and forensics capabilities; supported denied area operations; performed strategic multi-layer assessments; and, established an innovation outreach cell that facilitates better interactions with small companies developing emerging technologies that do not normally do business with the DoD.

In FY 2017, RRTO will continue to explore new and emerging capabilities to support irregular warfare operations in support of the Under Secretary of Defense (Acquisition, Technology & Logistics), the Assistant Secretary of Defense (Research and Engineering) and the Deputy Assistant Secretary of Defense (Emerging Capability & Prototyping) goals. With project selection occurring during the execution year, the RRTO's focus areas for FY 2016 projects include: capabilities to operate in denied areas; navigation in global positioning system-denied environments; persistent Intelligence, Surveillance and Reconnaissance (ISR) architectures; ISR sensors; global warming’s impact on operations in the Arctic; novel power sources for unmanned vehicles; emerging undersea warfare technologies; adaptive manufacturing to rapidly field prototypes; interface of law enforcement and military operations; biometrics and forensics science and technology; autonomous operations; data processing, exploitation and dissemination; exploitation of new and emerging cell phone technologies; counter-proliferation initiatives; wargaming and red teaming of emerging threats and capabilities; strategic communications and multi-layer assessments; and, non-traditional approaches to leverage innovative businesses.

The typical length of an RRTO project falls within a six to 18 month range in order to more effectively respond to the Warfighter.

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Success stories and significant transitions of note for FY 2015 include:

•Calderaevent: Calderaevent successfully demonstrated the ability to have situational awareness in denied environments. Technologies leveraged by this effort include precise timing equipment, military-grade radio sets and government developed algorithms. The capability was successfully demonstrated with accuracy of 10 meters at Trident Spectre 2015 at Joint Expeditionary Base Little Creek-Fort Story, Virginia. In early 2016, the Calderaevent capability will be demonstrated in the U.S. Pacific Command (USPACOM) area of responsibility with nodes in Hawaii, Japan, Australia and aboard an underway Navy ship in support of a transition decision to a program of record.

•Green Flash: Completed and transitioned the Green Flash prototype providing an overhead threat event countdown and notification application for smart phones. Details of this project are classified.

•Operationalizing "Just Doesn't Look Right": Completed the demonstration of a capability to give peacekeepers and military police enhanced situational awareness and a better understanding of culturally relevant suspicious behaviors, potentially reducing the learning curve for new missions and facilitating personnel safety and mission completion. Project deliverables transitioned to U.S. Southern Command, the Uruguay military, and elements of the United Nations.

•Flume: Completed phase one of the Flume assured data delivery software project which provided assured delivery of data over existing networks used by U.S. Special Operations Command (USSOCOM). This phase consisted of technical discovery, testing and documentation.

•Forward Firing Flare: Completed the Forward Firing Flare project which delivered two ALE-47 chaff/flare launchers in the forward firing configuration for incorporation aboard nonstandard aircraft. The products transitioned to assets deployed in support of U.S. Central Command (USCENTCOM).

•Intelligent Materials Sensor System (IMSS): The IMSS prototype uses a unique phosphorescent nano material to provide target information when illuminated. Following a demonstration of this optically-transparent tagging mechanism from a military aircraft LITENING Targeting Pod, IMSS received contracts in FY 2015 from USSOCOM and the U.S. Army.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Low Cost Innovative Projects (Projects Less Than One Million Dollars Each)	24.625	-	-
Description: Selected, executed and transitioned multiple low cost projects in the areas of: unmanned autonomous vehicles; electromagnetic spectrum agility; space resiliency; detection of explosives and weapons of mass destruction; deterrence of violent extremism; exploitation of commercial off-the-shelf technology; exploitation of communications technologies; small footprint operations; and, other emerging technology areas. These projects delivered proof of principle prototypes for evaluation or assessment by warfighters and interagency users.			
FY 2015 Accomplishments: •Gossip Enhancements to Social Network Aided Geo-Location (SNAG): Completed a classified project to apply geo-enhancement methods to Open Source Intelligence (OSINT) data sets to achieve greater location-based exploitation. Project deliverables have transitioned to Defense Intelligence Agency's (DIA) all-source analytic environment for intelligence production. The performers continue the enhancement efforts down to the neighborhood level. •Covert Unmanned Underwater Vehicle (UUV) Optical Communications Demonstration: Completed a Covert Unmanned Underwater Vehicle Optical Communications Demonstration which developed an optical modem to efficiently exfiltrate mission			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
data without requiring physical recovery of the UUV. Project deliverables transitioned to U.S. Navy's Commander, Submarine Forces. •Lightweight Intelligent Thermoelectric Energy: Completed the Lightweight Intelligent Thermoelectric Energy prototype, a man-portable electrical power source that can convert combustion heat, of any heat source, into useful electric power. All deliverables were met and the group is pursuing transitions to the U.S. Army Special Operations Command, the U.S. Southern Command, and the United Nations Peacekeeping Operations (PKO) mission. •Supercavitating Vehicle Hybrid Rocket Motor Technology: Completed the Supercavitating Vehicle Hybrid Rocket Motor Technology project to demonstrate the potential of inexpensive, reliable, off-the-shelf solid rocket motors to augment the controllability and superior performance of liquid rocket motor configurations. This was an anticipatory effort to enhance the payloads for the Office of Naval Research's Large Displacement Unmanned Underwater Vehicle. •Collapsible Water Charge: Completed user evaluation of the Collapsible Water Charge prototype to gather critical operational user input and feedback on tactics, techniques, and procedures for the shaped charge concept developed by the U.S. Naval Explosive Ordnance Disposal (EOD) Technology Division. Through employment of adaptive manufacturing techniques, the project produced multiple prototype configurations for evaluation prior to selection of an optimal form factor. The capability transitioned to Joint EOD operators. •Topaz: Completed the Topaz project, a prototype radio frequency intrusion detection sensor in support of critical infrastructure protection efforts. Details of this project are classified. •Periscope Simulator Demonstration: Completed the Periscope Simulator Demonstration for Naval Underwater Warfare Center to evaluate the effectiveness of a prototype non-acoustic periscope simulator payload. Project deliverables transitioned to U.S. Navy's Commander, Submarine Forces. •Fuel Management and Tailoring Device: Completed demonstration of the Fuel Management and Tailoring Device which monitors, tailors and overcomes fuel inefficient driving habits in tactical vehicles. The low cost (less than $500) fuel management device reduces fuel requirements by three to nine percent. Project deliverables were transitioned to the U.S. Navy Expeditionary Combat Command, U.S. Marine Corps, and the Army's Heavy Expanded Mobility Tactical Truck.. •Contingency Communications: Completed Contingency Communications to develop low visibility mission communications capabilities to protect clandestine operators and information. Project deliverables transitioned to U.S. Special Operations Command.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
•Quantum Sensing: Completed the Quantum Sensing project to explore methods to increase imagery resolution by exploiting quantum mechanical phenomena. Details of this project are classified. •Opal: Completed and transitioned the Opal low power, small form factor software defined radio prototype to support Department of Defense and Department of Homeland Security missions. Details of this project are classified. •Distributed Full Motion Video (FMV) Exploitation prototype: Completed the Distributed FMV Exploitation project, which developed a prototype software system to enable FMV exploitation in near real time. Project deliverables transitioned to the National Geospatial-Intelligence Agency and are hosted on its server. •Controlling Cooperative Unmanned Aerial Vehicles (UAV) Using Brainwaves: Completed the Controlling Cooperative UAVs Using Brainwaves project to develop and demonstrate core technologies to enable a warfighter to conduct simple military missions using UAVs controlled by brainwaves. The results of this project will inform future developmental efforts. •Counter Smuggling Weapons of Mass Destruction (WMD) Analysis, Training, and Technology (C-SWATT): Completed the C-SWATT effort to provide national security forces in friendly/allied nations with the capability to detect and interdict chemical, biological, radiological and nuclear (CBRN) materials and other illicit traffic. Project deliverables transitioned to the Counter-Terrorism Technical Support Office and Defense Threat Reduction Agency. •Distributed Precision Geo-location System: Completed the Distributed Precision Geo-location System demonstration, which leveraged a large number of existing fielded sensors to rapidly provide a robust capability to detect, identify and track targets of interest. Details of this project are classified. •Fourth Option: Completed the Fourth Option project to conduct modeling and simulation for a novel capability to track and trail threat vessels. The results of this effort are informing decisions for further development of the novel tracking capability. Details of this project are classified. •Operate to Know: Completed the Operate to Know project demonstrating a layered sensing and real-time situational awareness technology for the U.S. Marine Corps. This effort brought the prototype architecture to a live wargaming environment to evaluate the concept. Follow-on experimentation will be supported by the U.S. Marine Corps to enhance the capability and develop a sustained operational capability.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
•Net Zero Engagement: The Net Zero Engagement project compiled proven engagement approaches and coordinated participation and planned efforts with the DoD, warfighters, and host nation partners. The project developed frameworks, tools and training for U.S. Service personnel to build partner capacity and achieve better engagement outcomes in unstable and transitioning states at significantly lower cost. •ACME+: Completed the ACME+ project to adapt sensor technology to exploit the emerging third and fourth generation cellular telephone High Speed Packet Access (HSPA) and High Speed Packet Access Evolved (HSPA+) communication protocols. This effort will allow the warfighter to address emerging threats, such as terrorist activities. This capability transitioned to the end user in support of the warfighter. Details of this project are classified. •Arctic Cooperation: Completed the Arctic Cooperation project to assess the value added of Canadian commercial source data compared to data from classified U.S. sources for situational awareness in the Arctic. This effort allows a quantitative measure of current sensing, fusion and analysis capabilities. Details of this project are classified. •Lithium-ion Battery (LiB) State-of-Health Monitor: Completed the LiB State-of-Health Monitor project which created a diagnostic device for LiBs to detect irreversible chemical damage and prevent catastrophic failures. This capability will reduce the threat of sudden LiB failures, enabling safe use of efficient, energy-dense LiBs in a variety of platforms including unmanned systems. Prototype development was completed and plans are in development to transition the technology to U.S. Navy applications. •Laser Threat Detection and Defeat (LTDD): Completed the LTDD project which integrated advanced sensing technologies and mathematical algorithms into a prototype system capable of automatically identifying both the location and threat characteristics of offensively employed laser devices. The system enables Warfighters to effectively employ sensors and imagers to automatically detect, characterize and locate the laser threat so that it can be defeated. The technology transitioned to Technical Surveillance Counter Measures (TSCM) Operational Units for fielding and maintenance. •Perseus III: Completed the Perseus III project which enhanced the understanding of the capabilities and limitations of inexpensive, homemade unmanned aerial vehicles (UAVs) and how they may place Department of Defense (DoD) personnel, equipment and infrastructure at risk. Undergraduate college students participated in an exercise to identify low cost UAV solutions. The effort taps into nontraditional sources and provides DoD and the Intelligence Community with a fresh look at a growing problem. •Radio Frequency Interference: Completed the Radio Frequency Interference project which supported designing, executing and analyzing laboratory tests of radio frequency interference from a new class of low-power radio frequency devices on communications systems. The details of this project are classified.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
•Solid State Neutron Detector (SSND): Completed the SSND project which leveraged the single solid state detector previously developed by the National Aeronautics and Space Administration (NASA) and Department of Energy (DoE) to design, fabricate and test a two neutron detector package with associated electronics. This technology, which reduces material cost and false alarm rate while providing a 10-fold increase in detection sensitivity, has met all objectives for success. The team used the results of this project to inform future developmental efforts. •Visualization, Summarization, and Recommendation (VISR) for Audio/Visual Data: The VISR for Audio/Visual Data project created an integrated tool to incorporate basic data ingest tools into a framework capable of digesting and analyzing large amounts of data and making recommendations to the user for other sources on topic. With the successful completion of phase one, a second phase has been initiated to complete the project. •Anvil Plus: Adapted the cell phone exploitation technology from third generation to the emerging fourth generation Time Division Duplex-Long Term Evolution (TDD-LTE) communications protocols. Transitioned technology to the Defense Threat Reduction Agency (DTRA). The capability has been operationally deployed by a classified user. •Collaborative Coalition Structured Problem Solving: Completed the initial build of the Collaborative Coalition Structured Problem Solving that enabled collaboration between the United Kingdom's Defense Science and Technology Laboratory (DSTL) and the United States' Defense Threat Reduction Agency (DTRA). The capability offers a rigorous, flexible and operational solution for secure information sharing. Project software transitioned to DTRA and integration with DTRA's Advanced Analytics systems will continue in FY 2016. •Fusion Acquisition to Support Targeting (FAST): The FAST project developed a novel computational engine able to integrate light detection and ranging (LiDAR) and hyperspectral data in near real time. The technology is being assessed for potential transition to the Navy or National Geospatial-Intelligence Agency (NGA). •Future Infrared Search and Track (FIRST): The FIRST project demonstrated a novel sensor design that can detect targets with high resolution over a wide field of view (FOV) using an approach that multiplexes light from multiple portions of the area of interest onto a single focal plane array. The breadboard sensor design was successfully demonstrated. Development continues in FY 2016 leveraging prior year funds. •Text Recognition in Open Source Imagery: The Text Recognition in Open Source Imagery project developed computer vision algorithms for detecting and recognizing text in arbitrary uncooperatively-gathered pictures. The technology is being assessed for potential transition to the Air Force or National Geospatial-Intelligence Agency (NGA).			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
•Technology Solutions for Manufacturing Advanced Products (TSMAP): The TSMAP project developed a program to protect strategically important industry sectors such as small and medium sized U.S. manufacturing firms. TSMAP developed techniques to expedite the secure deployment of new technology products for critical DoD applications. The project also produced an "Understanding Security" guidebook for distribution to government and commercial organizations. Identification of transition partners continues. •Undersea Critical Message Transfer: The Undersea Critical Message Transfer project delivered a method for underwater communication over long ranges with reliable transmission and reception. Details of this project are classified. The initial proof of concept was a success and enabled initiation of a follow on phase of work. The project continues in FY 2016 leveraging prior year funds. •Identity Operations for Open-source Intelligence (OSINT) Actors: Completed deliverables for Identity Operations for OSINT Actors, a project to develop software and techniques to help analysts deny adversary online anonymity and protect forces to characterize the identity, behaviors and affiliations of online actors in internet data sources. The project will transition to Counter-Improvised Explosive Device (IED) Operations/Intelligence Integration Center (COIC) and the U.S. Special Operations Command (USSOCOM). •Large Displacement Unmanned Undersea Vehicle (LDUUV) Common Control: Completed deliverables for LDUUV Common Control project, which is an initial integration of the Common Control System (CCS) control segment software with a representative LDUUV in order to inform and support the acquisition activities of the Naval Sea Systems Command (NAVSEA) Unmanned Maritime Systems Program Office (PMS 406) LDUUV program. The project demonstrated Command and Control of the LDUUV and Unmanned Aerial Systems (UAS) from the same workstation, increasing effectiveness and efficiency. The common controller will enable easy integration of emerging government and commercial capabilities into the host platform. The team used the results of this project to inform future developmental efforts. The results transitioned to NAVSEA PMS 406. •High Definition (HD) Glass: Completed design of a HD heads up display that integrates with the Android Tactical Assault Kit (ATAK) and the Army's Net Warrior smartphone. The heads up display is used in conjunction with a smart phone to provide real time persistent heads up situational awareness to ground forces. HD Glass transitioned to the U.S. Army. •Query-Score, Export, Assess (Q-SEA) Software: Completed preliminary phase of customized software that will allow U.S. Central Command (USCENTCOM) and U.S. Pacific Command (USPACOM) information operations officers to process more data with improved confidence for assessments and recommendations. Q-SEA will allow users to counter violent extremist organizations' online activities, such as social media interaction used to garner support for terrorist events.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
•Ultra-High Frequency (UHF) Military Satellite Communications (MILSATCOM) Monitor: Completed preliminary design and component procurements for the UHF MILSATCOM Monitor project. This project provides an automated satellite communications monitoring technology that will quickly detect electromagnetic interference and characterize it to allow users to improve countermeasures and enable prompt identification.			
Title: Omni ***Description:*** The Omni project is developing a novel small size, weight and power (SWaP) laser communications (lasercom) system for dismounted units incorporating traditional lasercom features, such as small apertures, jamming resistance and low probability of intercept/detection. In the Omni system, pointing, acquisition and tracking are performed autonomously and are transparent to the user. ***FY 2015 Accomplishments:*** Omni was successful in creating a prototype omni-directional transmitter and demonstrating the technology to gain end-user buy-in. ***FY 2016 Plans:*** Leveraging prior year funds, Omni plans for FY 2016 are to create a prototype imaging receiver and field a functional demonstration to prove near instantaneous acquisition, tracking and decoding of multiple communication signals. The technology will be transitioned to the U.S. Air Force.	1.000	0.000	-
Title: Strategic Multi-Layered Assessment (SMA) Cell ***Description:*** The SMA Cell provides planning support to Combatant Commands (COCOMs) and U.S. Government agencies and provides actionable, systems orientation to complex operational/technical challenges. SMA efforts require multi-agency, multi-disciplinary approaches to address requirements that are not within the customer organization's core competency. The SMA cell identifies solutions from across the U.S. Government, academia and the private sector. SMA efforts are facilitated by the Joint Staff/J-3 and are executed by the Rapid Reaction Technology Office. ***FY 2015 Accomplishments:*** The SMA cell completed a short term effort to assess the appeal of Islamic State in Iraq and the Levant (ISIL) at the request of Commander, Special Operations Command Central (SOCCENT). This study provided an understanding of the psychological, ideological, narrative, emotional, cultural and inspirational ("intangible") nature of ISIL. The effort found that there has been no consensus on the set factors that define the appeal of ISIL. At SOCCENT's request, Phase II effort addressed what the Middle	2.000	2.000	2.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
East will look like, and how it is likely to operate after the ISIL threat has been defeated and the Syrian Civil War has come to an end. Products from both assessments have been delivered to SOCCENT. ***FY 2016 Plans:*** Support for the Commander, Special Operations Command Central will continue in FY 2016 with a short term "Proof-of-Concept" effort to evaluate and assess options that include the "Cognitive Spaces" along with narrative-based Information Operations (IO). The IO objectives are to disrupt ISIL leadership's ability to command and control forces, and to neutralize their ability to maintain or increase moral, political, and financial support and recruit foreign fighters; and, ultimately to psychologically isolate ISIL leadership from one another and their respective constituencies inside and outside of the organization. The effort will assess the value of "integrated neuro-cognitive-narrative maneuver" approaches to produce messages that are more likely to have intended effects and less likely to have undesirable unintended or collateral effects; deliver messages more effectively and efficiently by developing campaigns that achieve undercutting effects (i.e., leadership fragmentation, organizational fracture, separating population from the organization); and achieve positive coalition effects. The SMA cell will continue to actively work with the COCOMs and the Joint Staff to identify challenging problems that are not within the traditional areas of the Department of Defense (DoD) expertise. These problems will be in direct support of COCOM senior leadership and may include areas such as: counter terrorism; transnational criminal organizations; counter weapons of mass destruction (state and non-state); counter global or regional social and cultural assessments; regional stability assessments; and, individual state or national level deterrence studies. ***FY 2017 Plans:*** The SMA cell will continue to actively work with the COCOMs and the Joint Staff to identify challenging problems that are not within the traditional areas of DoD expertise. These problems will be in direct support of COCOM senior leadership and may include areas such as: counter terrorism; transnational criminal organizations; counter weapons of mass destruction (state and non-state); counter global or regional social and cultural assessments; regional stability assessments; and, individual state or national level deterrence studies.			
Title: Biometrics and Forensics Science and Technology ***Description:*** The focus area for Biometrics and Forensics Science and Technology projects will field prototypes that address the emerging technology gaps that limit our ability to quickly and accurately identify anonymous individuals who threaten our physical and virtual assets, overseas or in the United States. The overall goal of projects is to reduce future operational risk to warfighters by allowing them to identify bad actors by developing new technologies and approaches or countering adversaries' attempts to mitigate our current technologies. These projects will leverage techniques such as spiral prototyping, increased use of small businesses, and increased competition between vendors as outlined in Better Buying Power 3.0. Biometrics and forensics projects will mature emerging technologies that support evolving identity operations and forensic capabilities required by Commanders and warfighters in ongoing and future military activities. These efforts leverage the Reliance 21 model to encourage	3.500	3.300	3.300

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
collaboration on biometrics and forensics projects within the DoD, with interagency partners, with our partners in industry and academia; and, cooperation with international partners where applicable. This model will help maximize collaborative investment and prevent redundant research. Deliverables are shared throughout the biometrics and forensics communities. ***FY 2015 Accomplishments:*** The biometric portfolio developed technologies to close capability gaps and mitigate emerging threats in the areas of: increasing standoff distance for collection of biometric data; exploration of the use of emerging biometric identification modalities; collection of biometric data from non-cooperative subjects; and, improving the matching accuracy of non-ideal biometric data. The biometric portfolio also supported the final phases of technology transfer of the Biometrically Enabled Watchlist (BEWL) Dissemination Management Server to the Army's Biometrics Identity Management Activity (BIMA). The forensic portfolio supported development of capabilities to mitigate emerging threats and to close gaps identified by commanders in the areas of: faster collection of forensic data; improving accuracy of analysis of data; expanding the types of forensic data collected; and, increasing the amount of analyses that can be done in a field environment vice a laboratory environment. These included investments in the technologies that support digital and cyber forensics that allow the DoD to improve its capabilities to identify and individualize bad actors on the digital battlefield. The forensic portfolio managed the technology development efforts required to enable human identification and characterization capabilities and development of next generation genomic analysis technology. This included research in support of the personnel accounting community through extended kinship analysis research that is critical to the identification of the remains of fallen Service members from prior conflicts. Additional projects for biometrics and forensics portfolios were selected after coordination throughout DoD and across other U.S. Government departments and agencies to maximize collaborative investment and prevent unnecessary redundant research. ***FY 2016 Plans:*** The biometric portfolio will continue to mitigate gaps identified by commanders and operational users to improve capabilities in the areas of increasing standoff distance for collection of biometric data, exploration of the use of emerging biometric identification modalities, collection of biometric data from non-cooperative subjects, and improving the matching accuracy of non-ideal biometric data. The biometric portfolio will also support the final phases of technology transfer of the BEWL Dissemination Management Server. The forensic portfolio will mitigate gaps identified by commander's capabilities documents to mitigate emerging threats and to support the faster collection of forensic data, the improvement of the accuracy of analysis of data, the expansion of the types of forensic data collected, and increasing the amount of analysis that can be done in a field environment vice a laboratory environment. The forensic portfolio will manage the technology development efforts that support digital and cyber forensics to help protect DoD's networks as well as those within the defense industrial base. It will also support those technologies required to enable human identification and characterization capabilities and development of next generation genomic analysis technology. This portfolio will also continue supporting the personnel accounting community by helping to develop technologies that support locating and subsequent identification of the remains of fallen Service members from prior conflicts. Additional projects for			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
biometrics and forensics portfolios will be selected after coordination throughout DoD and across other U.S. Government departments and agencies to maximize collaborative investment and prevent unnecessary redundant research. ***FY 2017 Plans:*** The biometrics and forensics science and technology portfolio will continue to mitigate gaps identified by commanders and operational users and improve capabilities in the areas of biometrics and forensics. Projects for biometrics and forensics portfolios will be selected after coordination throughout DoD and across other U.S. Government departments and agencies to maximize collaborative investment and prevent unnecessary redundant research.			
Title: Faster Short Tandem Repeat (FaSTR) Human Deoxyribonucleic Acid (DNA) Profiling System ***Description:*** FaSTR uses a novel approach to achieve faster, lower cost, and portable human DNA analysis. This two phase project will develop a portable compact disc player-sized instrument to control the flow of human DNA and chemistry through centrifugal speed. The goal is to generate a DNA profile from "sample in" to "answer out" in less than 30 minutes and provide a match probability of one in fifty million people. ***FY 2015 Accomplishments:*** Phase I delivered proof of concept demonstrations of extraction, Polymerase Chain Reaction (PCR) amplification, and separation/ detection/allele calling using three separate subsystems. This phase delivered a Technology Readiness Level (TRL) Three instrument (three subsystems) that demonstrated proof of concept for design, chemistry, hardware and software control. These are micro devices for metering/mixing of reagents/sample and full genetic analysis of five loci. FaSTR also delivered sample analysis (system control) and profile generation (allele calling) software scalable to the full system. Phase I successfully demonstrated the proof-of-concept of using centrifugally-driven microfluidics to eliminate mechanical valves and pressure-driven flow allowing Commercial Off-the-Shelf (COTS) compact disc player electronics to drive chemistry (metering, mixing and reaction) for a range of applications. The project developed critical subsystems for Phase II devices and systems designed to run samples at less than $20 per sample and produce hardware systems under $5,000. ***FY 2016 Plans:*** There will be two Phase II variants in FY 2016, each taking the results from Phase I and customizing the design for Human DNA identification and explosives detection. Variant 1 of Phase II will integrate the subsystems and seek opportunities to probe six Short Tandem Repeat (STR) loci to provide random match probabilities of one in about 50 million. In addition, this phase will test and design modifications and optimizations to the initial prototypes delivered in Phase I. Test results will be reported back to project leaders for additional hardware and chemistry design modifications and optimizations to support a transition decision. Variant 2 of Phase II will seek opportunities to develop an operational prototype of an automated and integrated handheld device that will simultaneously test and identify not less than seven explosives commonly encountered in operational environments, and perform on-site, automated explosives identification within 10 minutes. Phase III (final phase) will deliver and transition to	0.100	0.800	-

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defense and intelligence organizations field-testable prototypes. The FaSTR prototype will be a handheld DNA device capable of conducting DNA sample-to-results analysis in less than 30 minutes and reduce overall life-cycle cost. The Variant 2 ExploDisc prototype will be a handheld explosive detection device capable of automatically testing and identifying seven explosives that are commonly encountered in operational environments within 10 minutes.			
Title: Innovation Outreach Program ***Description:*** The Innovation Outreach Program supports the DoD Better Buying Power objectives by leveraging technology and emerging products developed by small, innovative businesses in the commercial sector. Solutions from nontraditional emerging technology companies will be sought in support of critical Deputy Assistant Secretary of Defense for Emerging Capability & Prototyping (DASD(EC&P)) and RRTO objectives. Innovation Outreach will also support DoD Directorates and Program Offices by exposing potential solutions that solve current needs and deficiencies. The Innovation Outreach program will support the Department's objectives of promoting effective competition and fielding affordable capabilities by developing new sources of innovation from commercial research and development investments. Solutions are sought from innovative companies across the U.S. working in a broad spectrum of technology areas. The Innovation Outreach program will include support of emerging capabilities in communications, data and data analysis, alternative energy, autonomy, robotics, imagery, sensors, social networking and other areas identified during the execution years. ***FY 2015 Accomplishments:*** Innovation Outreach conducted five engagements focused on finding commercial solutions to stated problem sets for various Department of Defense (DoD) organizations, including U.S. Army Night Vision Laboratory, the Anti-Personnel Landmine Alternative Working Group and Special Operations Command. Topics addressed include data analytics, sensors, innovative materials, information technology, communications, modelling and simulation, power & energy and autonomy. ***FY 2016 Plans:*** Innovation Outreach Program investment decisions are made during the execution years in response to DASD(EC&P), Rapid Reaction Technology Office (RRTO), Department, Combatant Commands (COCOM), Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Innovation Outreach will execute five engagements with DoD users and interagency partners based on priorities identified in the execution year. Engagements will include DASD(EC&P), DoD Cyber Strategy, Joint Improvised-Threat Defeat Agency (JIDA), and the National Aeronautics and Space Administration. ***FY 2017 Plans:*** Innovation Outreach Program investment decisions are made during the execution years in response to DASD(EC&P), RRTO, Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities	3.000	3.250	3.500

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are presented. Innovation Outreach will execute five engagements with DoD users and interagency partners based on priorities identified in the execution year.			
Title: Open Source Data Analysis and Applications Focus Area ***Description:*** Open Source Data Analysis and Applications projects include the development of capabilities, software, and tools to analyze open source information. The data can be structured or unstructured and will include inputs from a broad spectrum of sources. Technologies developed within this focus area will reduce cost and manpower requirements to provide meaningful intelligence in support of Counter-Islamic State of Iraq and the Levant (ISIL), counter-weapons of mass destruction and counter-improvised explosive device missions. ***FY 2016 Plans:*** Rapid Reaction Fund (RRF) investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. RRF will support development of open source data analysis tools and applications. The program anticipates supporting six to eight projects. Deliverables will include capabilities and tools to exploit open source information and to reduce manpower required to provide actionable intelligence. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. RRF will support development of open source data analysis tools and applications. The program anticipates supporting six to eight projects. Deliverables will include capabilities and tools to exploit open source information and to reduce manpower required to provide actionable intelligence.	-	6.516	6.380
Title: Autonomous Systems and Behaviors Focus Area ***Description:*** Autonomous Systems and Behaviors projects include power systems to facilitate increased performance of unmanned systems, enhanced capabilities for multiple autonomous systems to cooperatively interact, development of sensors for integration aboard unmanned platforms, improvements to data ex-filtration from unmanned sensors, operation in denied areas and “red teaming” to counter emerging unmanned threats from potential adversaries. These projects will also examine the establishment of common software platforms to reduce development cost, increase collaboration among disparate unmanned vehicles, support rapid customization of autonomous systems’ architectures and inform development decisions for the autonomy community of interest. ***FY 2016 Plans:***	-	4.816	5.380

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*	**Project (Number/Name)** P828 / *Rapid Reaction Fund*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
RRF investment decisions are made during the execution years in response to Department, Combatant Commands (COCOM), Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. The Rapid Reaction Fund (RRF) will support development of unmanned autonomous aerial, surface, and subsurface systems. Anticipate supporting four to six projects. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. The RRF will support development of unmanned autonomous aerial, surface, and subsurface systems. Anticipate supporting four to six projects.			
Title: Urban Characterization Focus Areas ***Description:*** Future military operations will likely occur in a broad range of urban environments in areas where we are denied free access. Urban Characterization Focus Area projects will identify, analyze and describe typical urban areas for modeling, simulation and planning purposes. These efforts will inform and enable development of Intelligence, Surveillance and Reconnaissance (ISR), electronic warfare, kinetic/non-kinetic and other capabilities needed for future military operations in a wide range of urban areas. ***FY 2016 Plans:*** The RRF investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. The Rapid Reaction Fund (RRF) will support development of open source data analysis tools and applications. Anticipate supporting three to five projects. Deliverables will include modeling and simulations systems to support planning efforts. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. RRF will support development of open source data analysis tools and applications. The program anticipates supporting three to five projects. Deliverables will include modeling and simulations systems to support planning efforts.	-	2.919	2.880
Title: Intelligence, Surveillance and Reconnaissance (ISR) Focus Area ***Description:*** ISR sensors span a wide range of sensing modalities and generally produce very large data sets that are difficult to analyze. Efforts in this area will develop better sensors and tools to more effectively analyze or visualize ISR data. Projects include improved surveillance sensors, tools to facilitate analysis of large data sets, methods to harvest meaningful intelligence from open and classified sources and establishment of more effective processing, exploitation and dissemination capabilities to facilitate integration of new and existing systems. Projects in this area generally involve high risk and have high potential reward;	-	4.332	5.080

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
and, are not being addressed by other organizations. Projects will also explore technologies to improve ISR in denied areas. ISR projects will also evaluate methods of increasing the effectiveness of ISR architectures to maximize the capability delivered to the user and to reduce the amount of human analyst manpower required to produce actionable intelligence. ***FY 2016 Plans:*** The RRF investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future ISR capabilities. Anticipate supporting five to seven projects. Deliverables will include prototype systems and software for a variety of platforms, as well as analytical capabilities developed to reduce the manpower burden needed to process large sets of ISR data. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future ISR capabilities. Anticipate supporting six to eight projects. Deliverables will include prototype systems and software for a variety of platforms, as well as analytical capabilities developed to reduce the manpower burden needed to process large sets of ISR data.			
Title: Additive Manufacturing Focus Area ***Description:*** This focus area will develop the enabling capabilities and key technologies required to advance additive manufacturing technology. Additive manufacturing projects are those that use processes in which successive layers of material are laid down under computer control to create functional three dimensional products. The Rapid Reaction Technology Office will leverage the innovative capabilities of Federally Funded Research and Development Centers (FFRDCs), government laboratories, academia and industry to develop proof of principal prototypes in this emerging field. Projects include spare part replacement, jet engine repair, custom hardware enclosures, and three-dimensional (3-D) models. Products in this area are generally revolutionary and are not being addressed by other organizations. Projects have the potential to significantly reduce the supply chain inefficiencies by storing parts as software and manufacturing on demand, and using rapid prototyping to reduce time and cost of design. Projects can also reduce amount of human manpower required to produce functioning prototypes. Deliverables will inform enhancement decisions and concept of operations development. ***FY 2016 Plans:*** Rapid Reaction Fund (RRF) investment decisions are made during the execution years in response to Department, Combatant Commands (COCOMs), Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout Department of Defense (DoD) and other government	-	3.417	4.080

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
agencies will help identify areas critical to developing future capabilities of interest within the additive manufacturing field to multiple federal organizations. Anticipate supporting six to eight projects ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future capabilities of interest within the additive manufacturing field to multiple federal organizations. Anticipate supporting seven to nine projects.			
Title: Undersea Warfare and Technology Focus Area ***Description:*** This focus area will develop the enabling capabilities and key technologies required to maintain undersea dominance, drawing on the recommendations of the Long-Range Research and Development Program Plan under the Defense Innovation Initiative. Major drivers in the undersea domain include the development of extra-large, large, and small families of multi-mission unmanned undersea vehicles (UUVs) and the rapid growth of commercial undersea activity. The DoD is exploring emerging concepts for ubiquitous undersea communications, command and control, and large-scale UUV capabilities. In order to enable these concepts, RRF will focus on developing capabilities and technologies such as undersea power production, storage and distribution; enhanced signal processing; autonomy; undersea situational awareness and navigation; sensors; undersea communications; and advanced materials development and production. Projects in this area are generally short term, high risk and high pay-off. ***FY 2016 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future capabilities of interest within the undersea technology field to multiple federal organizations. Anticipate supporting six to eight projects. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future capabilities of interest within the undersea technology field to multiple federal organizations. Anticipate supporting six to eight projects.	-	7.410	7.490
Title: Interface of Military Operations with Law Enforcement and Border Protection Focus Area ***Description:*** Interface of Military Operations with Law Enforcement and Border Protection projects include collaboration and exercises with law enforcement organizations to identify overlap and synergies between military and law enforcement operations,	-	2.119	2.880

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
exploitation of law enforcement data for use in an irregular warfare environment, development of improved border protection capabilities that can be used in military base protection and expanding the capabilities of biometrics and forensics tools. ***FY 2016 Plans:*** Rapid Reaction Fund (RRF) investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future capabilities of interest to multiple federal organizations. Anticipate supporting three to four projects. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOMs, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify areas critical to developing future capabilities of interest to multiple federal organizations. Anticipate supporting four to five projects.			
Title: Red Teaming in Support of Emerging Capabilities Focus Area ***Description:*** Red Teaming projects assess the susceptibility of emerging capabilities defeat by parties not intimately familiar with the technology. The Rapid Reaction Technology Office (RRTO) will leverage the innovative capabilities of Federally Funded Research and Development Centers (FFRDCs), government laboratories, academia and industry to develop a construct that current or future systems can be gamed against in a distributed table-top environment employing traditional and non-traditional players. Deliverables will inform enhancement decisions and concept of operations development. ***FY 2016 Plans:*** The Rapid Reaction Fund (RRF) investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination with organizations throughout DoD and other government agencies will help identify key technologies and systems to be assessed by red teams. Deliverables will include recommendations on system operational employment, potential vulnerabilities, and likely countermeasures taken by the threat as well as potential counter-countermeasures to increase functionality or operational effectiveness of the system. Projects will include Red Team efforts employing government laboratory scientists, subject matter experts and undergraduate students of Science, Technology, Engineering, and Math (STEM) disciplines to explore unconventional approaches to counter DoD technologies. Anticipate supporting five to six projects. ***FY 2017 Plans:*** RRF investment decisions are made during the execution years in response to Department, COCOM, Service and other government organizations' priorities and as new threats emerge or new opportunities are presented. Research and coordination	-	3.547	4.380

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
with organizations throughout DoD and other government agencies will help identify key technologies and systems to be assessed by red teams. Deliverables will include recommendations on system operational employment, potential vulnerabilities, and likely countermeasures taken by the threat as well as potential counter-countermeasures to increase functionality or operational effectiveness of the system. Projects will include Red Team efforts employing undergraduate students of STEM disciplines to explore unconventional approaches to counter DoD technologies. Anticipate supporting six to seven projects.			
Accomplishments/Planned Programs Subtotals	34.225	44.426	47.350

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

In FY 2017, performance metrics applicable to the Rapid Reaction Fund (RRF) include attainment of DoD Strategic Objective 3.5.2D. The title of this objective is "Maintain a strong technical foundation within the Department's Science and Technology program" and the metric for this objective is the transition of 40 percent of completed projects per year. In addition, project performance metrics are specific to each effort and include measures identified in each specific project plans. Project completions and successes are monitored against schedules and deliverables stated in the proposals and statements of work. The metrics include items such as target milestone dates, specific performance measures, fielding dates and demonstration goals. For projects completed in FY 2015, the RRF achieved a transition rate of approximately 75 percent.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense			Date: February 2016
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*	Project (Number/Name) P831 / *Joint Rapid Acquisition Cell Support*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P831: *Joint Rapid Acquisition Cell Support*	4.859	1.554	1.620	1.636	-	1.636	1.652	1.669	1.686	1.703	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding includes support for the Joint Rapid Acquisition Cell (JRAC) to enable management and tracking of Combatant Command (COCOM) identified and Joint Staff validated immediate warfighter needs. The JRAC is responsible to:
(1) Coordinate review of validated Joint Urgent Operational Needs (JUON) and Joint Emergent Operational Needs (JEON) and assign responsibility to appropriate DoD Components for timely funding and resolution.
(2) Serve as the review and approval authority for the DoD Components' strategy to fund and mitigate the identified JUON/JEON capability gap.
(3) Continually assess actions taken by the DoD Components to resolve JUONs/JEONs and recommend to the Under Secretary of Defense for Acquisition, Technology, and Logistics any changes determined appropriate to improve their responsiveness to JUONs/JEONs.
(4) Provide periodic reports to the Secretary of Defense on new and outstanding JUONs/JEONs.
(5) In coordination with Under Secretary of Defense Comptroller (USD(C)), manage the Rapid Acquisition Fund (RAF) to allocate resources to priority unfunded JUONs/JEONs.
(6) In coordination with the Office of the Chairman of the Joint Chiefs of Staff and the USD(C), make programmatic, budget, and acquisition recommendations for JUONs and identify capability gaps to the Secretary of Defense.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Joint Rapid Acquisition Cell (JRAC) Management Support	1.554	1.620	1.636
Description: This funding is utilized to support the staff manning of the JRAC to enable management and tracking of COCOM identified and Joint Staff validated immediate warfighter needs.			
FY 2015 Accomplishments: Supported the JRAC to enable management and tracking of immediate COCOM warfighter requirements. Warfighter needs were validated by the Joint Staff.			
FY 2016 Plans: Continue support for the JRAC management and tracking of COCOM initiatives. Continue validation of the warfighter needs by the Joint Staff.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Continue support for the JRAC management and tracking of COCOM initiatives. Continue validation of the warfighter needs by the Joint Staff.			
Accomplishments/Planned Programs Subtotals	1.554	1.620	1.636

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

NA – Capabilities acquired to fulfill Joint Urgent Operational Needs (JUON) and Joint Emergent Operational Needs (JEON) are provided by other DoD components.

E. Performance Metrics

Joint Rapid Acquisition Cell performance metrics are specific to each JUON/JEON and include measures identified in the management approach for each action. In addition, JUON/JEON completions and successes are monitored against schedules and deliverables stated in the management approach. The metrics to which JRAC support correlates is to the number of full time personnel identified in the JRAC support contract with associated pay rates and shall not exceed the specified amounts or hourly rates and/or firm fixed price.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense			Date: February 2016
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603826D8Z / *Quick Reactions Special Projects (QRSP)*	Project (Number/Name) P833 / *Strategic Multi-Layered Assessment (SMA) Support*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P833: *Strategic Multi-Layered Assessment (SMA) Support*	4.175	2.179	2.062	2.282	-	2.282	2.305	2.328	2.351	2.375	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Strategic Multi-Layered Assessment (SMA) Cell supports all Combatant Commands (COCOMs), Joint Force Commanders and other government agencies by assessing complex operational/technical challenges, which require collaborative multi-agency and multi-disciplinary approaches. With input from across the U.S. Government, academia and the private sector, the SMA cell develops solution options to COCOM generated challenging problems and informs the command's senior leadership. Each SMA effort is initiated at the request of senior COCOM leadership. Priorities for SMA problems are set by the Joint Staff Deputy Director for Global Operations. Products are typically produced within six months and directly contribute to the decision making process of COCOM's senior leaders. SMA is also supported by the Rapid Reaction Fund (RRF).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Assessing “Gray Zone” Conflicts for the United States Security Coordinator, U.S. European Command (USEUCOM), U.S. Strategic Command (USSC), and U.S. Special Operations Command (USSOCOM)	2.179	2.062	2.282
Description: The SMA Cell conducted an effort starting in FY 2015 at the request of the USSC for Israel and the Palestinian Authority. The effort evaluated strategic risks and identified knowledge gaps in order to provide an increased understanding of potential future security environments and their implications for Palestinian security sector reform. USEUCOM subsequently asked SMA to apply the same methodology to identify emerging Russian threats and opportunities in Eurasia. USSOCOM initiated work based on those two efforts focused on developing strategies and response options for “Gray Zone” conflicts.			
FY 2015 Accomplishments: The project provided an increased understanding of potential future security environments and their implications for Palestinian security sector reform. The SMA team conducted a multi-disciplined review of USSC challenges and provided to the USSC staff a series of insights and recommendations that enabled them to derive a rich contextual understanding of the socio-political, social-cultural, security and economic dynamics of the region. The SMA team also conducted a successful simulation with the participation of both USSC staff and high-level subject matter experts in Washington, London and Jerusalem. As the capstone of the SMA project, the team developed social media content, analyzed the simulation from neuro/psychological perspectives and provided background materials on Palestinian security forces. The USSC participants indicated the scenario realistically portrayed some of the dilemmas they face in real life and the exercise was a valuable, thought-provoking and novel way to engage these issues. The USSC staff requested this simulation be used in the future to train incoming USSC staff. Based on the analytical methods, the framework development, and the models developed during the USSC Coordinator’s Mission Review, the USEUCOM J5 requested that the SMA team undertake an effort to identify emerging Russian threats and opportunities in Eurasia. The study examined future political, security, societal and economic trends to determine where U.S. interests are congruent			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
or in conflict with Russian interests, and in particular, detected possible leverage points when dealing with Russia in a “global context.” Additionally, the analysis considered where North Atlantic Treaty Organization interests are congruent or in conflict with Russian interests. Building on the findings from the completed EUCOM effort, U.S. Special Operations Command (USSOCOM) requested the SMA team start an effort to diagnose, identify, and assess indirect strategies, and develop response options against associated types of “Gray Zone” conflicts. A "Gray Zone" conflict is the purposeful, ambiguous, aggressive, integrated use of multiple elements of power by an adversary to achieve its objectives that exceed the threshold of normal peacetime competition yet fall below the level of major war. This “Gray Zone” effort will continue in FY 2016. The cell also continued to actively work with the Combatant Commands (COCOMs) and the Joint Staff to identify challenging problems that are not within the traditional areas of DoD expertise. These problems directly supported the COCOMs and included areas such as: counter terrorism; transnational criminal organizations; counter weapons of mass destruction (state and non-state); counter global or regional social and cultural assessments; regional stability assessments; and, individual state or national level deterrence studies.			
FY 2016 Plans: The SMA Cell, at the request of the USSOCOM Commander, will continue an effort to assess how the U.S. Government can diagnose, identify, and assess indirect strategies, and develop response options against associated types of “Gray Zone” conflicts. Specifically, if the U.S. Government is to respond effectively to the threats and opportunities presented in the increasingly Gray security environment, it requires a much more detailed map of the space between peace and war than it currently possesses. The project will provide a more rigorous and comprehensive articulation of the space between militarized conflict and peace. The project team will conduct a quantitative analysis of historical antecedents of such occurrences and its contemporary manifestations and geopolitical drivers. The team will assess what the specific U.S. experience has been with Gray Zone conflicts and what strategies and tactics have been most and least successful as instruments of U.S. policy. The team will also explore the nature of the capabilities - conceptual, procedural and physical - necessary for navigating this Gray space. The SMA team will identify how the various elements of power need to be coordinated to effectively respond to Gray Zone conflicts; examine interests, resources, and capabilities of Violent Extremist Organizations and Transnational Criminal Organizations in gray zone regions. The SMA team also will initiate a case study to examine the behavior of select state and non-state actors (e.g. Russia and Daesh (ISIS)) in gray zone conflicts as related to their indirect strategic objectives to identify indicators of increasing aggression, ambiguity, integrated use of elements of power, decreasing collaboration with adversaries, and destructive leadership. Products from the effort will be provided to SOCOM, and all other COCOMs. The cell will continue to actively work with the COCOM's senior leadership and the Joint Staff leadership to identify challenging problems that are not within the traditional areas of DoD expertise. These problems will be in direct support of the COCOMs and may include areas such as: counter terrorism; transnational criminal organizations; counter weapons of mass destruction (state and non-state); counter global or regional social and cultural assessments; regional stability assessments; and, individual state or national level deterrence studies.			
FY 2017 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
The SMA Cell will complete its efforts to assess and respond to "Gray Zone" conflicts in FY 2017 and transition the products to the USSOCOM Commander. The cell will continue to actively collaborate with COCOM senior leadership and the Joint Staff leadership to identify challenging problems that are not within the traditional areas of DoD expertise. These problems will be in direct support of the COCOMs and may include areas such as: counter terrorism; transnational criminal organizations; counter weapons of mass destruction (state and non-state); counter global or regional social and cultural assessments; regional stability assessments; and, individual state or national level deterrence studies.			
Accomplishments/Planned Programs Subtotals	2.179	2.062	2.282

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

SMA performance metrics are specific to each effort and include measures identified in the specific project plans. In addition, project completions and successes are monitored against schedules and deliverables stated in the execution documents. Each project's results are reviewed by a senior review group that is comprised with representatives from the Office of the Secretary of Defense, the Joint Staff, the COCOMs, and outside subject matter experts. The ultimate measure of success is adoption and transition of SMA products by the COCOM and supporting entities.